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AUTHOR Luce, Eric F.; Malone, Susan C.; Mann, Edward C.
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ABSTRACT

This paper summarizes technology standards for teacher education and identifies performance outcomes that correlate with those standards. It also outlines processes and plans for acting on and setting technology standards. Specifically, the work of the ad hoc Committee on Technology for Teacher Education at the University of Southern Mississippi is described. The committee agreed that technology competencies for teacher education should build on the Mississippi State Department of Education's competencies for students at the K-12 level and its Instructional Technology Standards for Professional Development. Options that departments may adopt for assuring that competencies are achieved were recommended. Four goals for insuring the infusion of instructional technology into professional education programs were endorsed by the Professional Education Council: professional education faculty will have skills needed to model the use of teaching with technology in a transparent manner; standards and curriculum of the professional education program will be designed to efficiently use technology to enhance learning; professional education faculty and students will have access to appropriate technology to enhance teaching skills and to model the effective use of technology as a teaching tool; and collaborations will be developed and strengthened among university departments and with outside agencies. An evaluation plan was designed to monitor progress toward meeting project goals. (MES)

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Preparing Mississippi's Future Teachers to Use Technology

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Eric F. Luce
Associate Professor of Curriculum and Instruction
The University of Southern Mississippi
Gulf Coast Division of Education and Psychology
730 East Beach Boulevard
Long Beach, MS 39560

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Susan C. Malone
Associate Professor of English
The University of Southern Mississippi
Box 5037
Hattiesburg, MS 39406-5037

Edward C. Mann
Chair and Associate Professor
Technology Education
Box 5036
Hattiesburg, MS 39406-5036

Presented at the Mid-South Instructional Technology Conference
Middle Tennessee State University, Murfreesboro, TN 37132
http://www.mtsu.edu/~itconf

Abstract

The University of Southern Mississippi, the largest producer of teachers in the State of Mississippi, is implementing an innovative strategy for infusing technology in and improving the teacher preparation program at USM. Plans are being developed to assure that professional Education faculty can model the use of technology to support teaching and learning. This session will summarize technology standards for Teacher Education and identify performance outcomes that correlate with those standards. It will also outline processes and plans for acting on and, perhaps, even for setting technology standards for Teacher Education. A progress report will be provided.

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Preparing Mississippi's Future Teachers To Use Technology

The University of Southern Mississippi (USM) is a multi-campus, comprehensive university that is the single largest producer of teachers in the state. The University is committed to preparing professional educators and identifies professional education programs as one of the defining missions that shapes the University's vision of its future. The Professional Education Council (PEC), chaired by the Dean of the

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College of Education and Psychology, governs the University's Professional Education Unit. PEC membership includes representatives from the five colleges offering programs in professional education, educators from the public schools, and representatives from the student body.

In the fall of 1998, the PEC led USM's Professional Education Unit through a successful NCATE accreditation visit. The self-study preceding that visit laid the groundwork for substantial curricular reform efforts that are now underway. In a related reform initiative, the PEC directed an ad hoc committee on technology to determine competencies for Teacher Education in technology, to suggest options that departments might adopt for assuring that competencies for Teacher Education in technology are achieved, and to determine the manner in which departments are to report this information.

Then, the ad hoc technology committee was directed by the Chair of the PEC to follow up on its initial report (prepared and submitted at the August 1998 PEC meeting) by continuing to review technology standards for Teacher Education and to consider how these standards applied to the committee's first set of recommendations. The ad hoc committee was instructed to work in a way that might promote faculty awareness of technology standards for Teacher Education and for professional teachers by summarizing current technology standards for Teacher Education and by identifying performance outcomes related to teaching and learning that correlated with those standards. After further review of technology standards for Teacher Education and discussion about performance outcomes that might relate to "the standards," the committee arrived at consensus on a number of things and reported again to the Professional Education Council in February 1999.

Soon after, a plan of action was developed in the form of a proposal for a $175,000 federal grant to pursue the objective of improving pre-service teachers' use of technology in the classroom. In September 1999, USM received a Capacity-Building grant through the Preparing Tomorrow's Teachers to Use Technology (PT3) program. With support from the PT3 initiative, the University has been able to lay a foundation that will support further implementation of the ad hoc technology committee's recommendations.

Supporting Technology Standards for Teacher Education

Between April of 1998 and March of 1999, the ad hoc Committee on Technology for Teacher Education at USM went about its work as instructed. There were six members of this committee with faculty representation from Teacher Education programs in Elementary Education, Secondary Education, Special Education and Technology Education. The committee's first report was shared with the PEC at its scheduled monthly meeting in August of 1998.

With regard to its first charge, that of determining competencies for Teacher Education in technology, the committee agreed that technology competencies for Teacher Education should build on competencies that the Mississippi State Department of Education seeks to foster n students at the K-12 level and should be consistent with Instructional Technology Standards for Professional Development that the Mississippi State Department of Education had articulated. These standards were based on NCATE and ISTE guidelines and standards. The committee also agreed that the building of technological competence is a matter that is increasingly likely to precede matriculation at the university, but which also is a core value in the recommendations on Teaching and Learning from the Report of the Commission on the Future of the University (USM, April 14, 1998) which would "require a freshman experience course to aid students to develop critical thinking, research and study skills, introduce them to the University library and the use of electronic information systems, and teach other vital skills that will contribute to the students' success in college and in life." The report also emphasizes that the university "provide the latest instructional technology and training in effective use of such technology."

Given this university wide commitment to supporting student learning with technology and given the increasing technological competence that might be expected of students applying for admission into the Teacher Education programs at the university, the ad hoc committee recommended that technology skills and competencies should be evidenced through demonstration by all Teacher Education students no later than the end of the first semester of the junior year of undergraduate certification programs.

The PEC's second charge to the ad hoc technology committee was for it to suggest options that

departments may adopt for assuring that competencies for Teacher Education in technology are achieved. The committee recommended that progress might be made toward achieving this goal if all Teacher Education syllabi reflected the use of technology to support teaching and learning. Where syllabi might not show such evidence, the committee was willing to concede that there might be good reasons for this to be the case, but that such omissions should be justified with strong pedagogical rationales. The ad hoc committee also suggested that similar commitment should also be demonstrated in all syllabi (not just those for Professional Teacher Education programs) in support of the core curricular value set on integrating the use of technology across the university.

The committee recommended that each Teacher Education unit of program develop human performance support systems which might include hired technology savvy personnel to assist Teacher Education faculty in modeling technology skills and behaviors. It also recommended that teaching and learning areas be supported with adequate and appropriate technologies (hardware and software) so that Teacher Education student and faculty technology skills and behaviors could be learned as well as exhibited. Moreover, the ad hoc committee strongly recommended that Teacher Education faculty be recognized for their use of technology to support teaching and learning in annual evaluations and that the evaluation system for professional performance might be revised so that such efforts and initiative "count" in teaching evaluations.

For Teacher Education students, the committee recommended that fundamental technology skills and competencies be documented and registered by the end of the first semester of the junior year. It was suggested that this might be accomplished in a number of ways. Students who opt to take or who are required to satisfactorily complete a course, such as Technological Literacy for Educators, might demonstrate minimal levels of competence when this accomplishment is registered on the student's transcript. The committee also suggested development of a form or checklist that might include technology competencies and skills that might be expected of all Teacher Education students by the end of the first semester of the junior year and that these competencies might be "CLEPed" (Credit for Life Experience Proficiencies) before that time through a variety of methods that the Departments might devise with the approval of the PEC. These methods could range from an "all or nothing, high stakes" CLEP Comprehensive Technology Examination to an incremental model in which competencies and skills are "banked" and "registered" over time. The Committee encouraged all Teacher Education programs and supporting academic units to consider building on these minimal standards and guidelines for Teacher Education student proficiency in ways that are appropriate for the particular teaching specialty areas.

While the committee suggested a range of options with Departments and programs might adopt to address important issues relating to the use of technology to support teaching and learning by Teacher Education students, the committee suggested that departmental reporting mechanisms might best be developed by the departments and programs with the approval of the PEC and related oversight agencies. In the absence of departmental or program initiative, the committee left open questions relating to top down dictation of standards and reporting practices expected from the grass roots levels of the Teacher Education programs. However, it was hoped that with university support to address technology standards across the curriculum. Teacher Education programs would respond in responsible and appropriate ways. In this way, the third initial charge that the committee was instructed to consider (that of determining the manner in which departments might report on an be accountable for being attentive and responsive to technology standards for Teacher Education) was addressed.

Following submission of its initial report to the PEC, the ad hoc technology committee was directed by the Chair of the PEC to continue to study technology standards for Teacher Education an to consider how these standards might apply to recommendations made in the August 1998 report. They were asked also to work in ways that might promote faculty awareness of technology standards for teacher education and for professional teachers. After deliberating thoroughly, the committee again reported to the PEC in February 1999.

The committed agreed that technology-related curriculum for pre-service teacher preparation and for in

service training of Teacher Education faculty should be flexible and meet the needs of individual instructors. A wide range of skills and applications might be used to embrace student and teacher performance. Also, it agreed that while technology standards for Teacher Education can be clearly articulated there is likely to be no single set of proficiencies appropriate for all k-16 educators. Technical assistance in Teacher Education should support instructors (pre-service and university based) with relatively advanced skills and knowledge to explore a wide variety of applications that they believe to be appropriate, but it should also allow teachers with little prior knowledge to master basic skills that will build confidence so that skill building will con tinue through professional development.

The committee suggested that pre-service teacher preparation and professional development be process oriented. It may be difficult for teacher preparation and professional development programs to have the time or the resources to cover the wide range of technological applications that are available and emerging for both teacher and student performance. However, by developing process oriented skills and knowledge (for example, the ability to analyze, select, apply and evaluate appropriate technologies), pre-service teachers and Teacher Educators can become more responsible for improving their technological proficiency and in developing their own plans for acquiring professional levels of technological literacy suited to their roles and goals in education.

Also, as members of the Professional Education faculty, the committee agreed that when we talk about integrating technology use in the classroom we should strive to keep the technology as transparent as possible. That is, unless the subject matter focus is specifically on technology, subject matter should be the focus and not the computers, video discs, or other media. The committee believed strongly that faculty should model this integrative behavior in our work with pre-service teachers if we are to expect them to use technology in this way in their classrooms.

Given the proliferation of technological proficiencies, the committee concurred with NCATE, ISTE and other national standards in suggesting that three levels of proficiency be considered for technology related training for educators. These are a) basic computer/technology operations and concepts; b) personal and professional use of technology; and c) application of technology in instruction. The committee agreed that pre-service teachers and Teacher Educators must be provided with time and training to develop proficiency at all three levels. Performance outcomes related to these standards for all Teacher Education programs at the university were too numerous for the committee to elaborate in detail. However, for Professional Educational Faculty, technology standards might be benchmarked into performance outcomes according to each of the three proficiency levels.

In its February 1999 report to the PEC, the committee recommended that the use of technology should be infused throughout the university's pre-service teacher preparation programs. It was noted that some teacher preparation programs at USM have tried to do this and that some programs have eliminated technology-specific course requirements. while the committee's preference was that technology be integrated and infused across the curriculum, it observed that until most university faculty can demonstrate that they can effectively model the use of computer technology in the classroom it may be necessary to require technology based courses to address certification performance outcomes.

Since resources for using technology to support teaching and learning are expensive and not always available to address the demand for their use and the mandate that they be used which the technology standards for Teacher Education outline, it was suggested that the unit explore the formation of partnership with k-12 public schools, businesses, industry, and state agencies to jointly pursue approaches supporting technology development. Partnerships might provide cost savings for preparing pre-service and in service teachers. Sharing equipment, labs, instructors and expertise might offer not only financial advantages, but also the possibility of developing new models and approaches to meet the demand for technology-rich classrooms. Such collaboratives might also help to address technology training needs of pre-service teachers as well as professional development needs of k-12 educators and of Professional Education Faculty. The committee concluded by emphasizing its belief that without adequate on-going support in the form ofhardware, software and technical assistance to support Teacher Education for students and the work of professional education faculty on their behalf, the integration/infusion model that

it preferred for employing technology to support teaching and learning will not likely be successful.

Building Capacity for Innovative Transformations of Teacher Education Through Technology

Between March and June of 1999, an interdisciplinary team of faculty from across the university developed a plan to try to assure that Professional Education Faculty might have skills needed to model the use of technology in a transparent manner when they teach, to design standards and curriculum to efficiently use technology to enhance learning, to improve access of education faculty and students to technologies needed to enhance teaching skills and to model the effective use of technology as teaching tools, and to develop and improve collaboration among academic departments, area school systems, community colleges and others that provide technology training to effectively integrate the use of technology as learning tools. That plan was embedded in a proposal for a $175,000 federal grant to pursue the objective of improving pre-service teachers' use of technology in the classroom.

These efforts were rewarded in the form of a capacity-building grant to lay the groundwork for program development. With support from the Preparing New Teachers to Teach with Technology initiative, Professional Education Faculty have had time to learn and to consider not only the possibility, but also the benefits of changing the ways that they teach. One unusual aspect of the USM program is that education faculty who receive special technology training have been partnered with public school teachers and these Professional Education Faculty members then go out to work with school children in the field to investigate what technology tools are effective. Partnering with seven school districts, six two-year colleges, two education consortia, and the Mississippi Department of Education, the university has been undertaking on-going efforts that are laying the groundwork for extensive technology infusion that complements overall curriculum reform efforts already underway. Also, community college and school partners have participated actively in helping to determine what entry-level standards should or might be expected of Teacher Education candidates at the university.

Subsequent to the reports of the ad hoc technology committee, four broad goals for insuring the infusion of instructional technology into all professional education programs have been endorsed by the PEC, the governing body of professional education programs at USM. These goals are that: 1) Professional Education Faculty will have the skills needed to model the use of teaching with technology in a transparent manner; 2) The standards and curriculum of the professional education program will be designed to efficiently use technology to enhance learning; 3) Professional Education Faculty and students will have access to appropriate technology to enhance teaching skills and to model the effective use of technology as a teaching tool; and 4) Collaborations will be developed and strengthened among university departments, with k12 Local Education Agencies (LEAs), area community colleges, and with existing consortia that provide technology training and support to area schools to effectively integrate the use of technology as learning tools throughout the education system.

Along with these goals, four objectives with related activities have been identified to build capacity for supporting teaching and learning with technology to allow USM to pursue an innovative teacher preparation program improvement strategy. The first objective is to develop a system of insuring basic technology literacy for in-coming professional education students. USM is working to identify basic technology literacy competencies to address this objective by conducting an extensive literature review, by incorporating previously established basic technology competencies (i.e., NETS Standards, ISTE Category I Standards, Mississippi Department of Education Computer Competencies), and by forming and collaborating with an Educational Technology Standards Committee with membership consisting of representatives from the community college and LEA members of the consortium, as wells as representation from the Mississippi Department of Education.

Specific courses from the University and local community colleges are being identified that, upon successful completion (a grade of C or better)), would satisfy basic technology literacy requirements. In addition, a means of determining technology literacy through a "challenge" test might soon be documented in the professional education student's file and be required for admission to candidacy in

Teacher Education. Already, the Educational Technology Standards Committee has reached consensus on a list of basic competencies that are consistent with ISTE's Basic Educational Technology Literacy standards, has agreed on the development of a performance-based test for incoming students, and is currently working towards articulation agreements between USM and its feeder two-year colleges that will identify existing courses that can serve as transcript evidence of meeting the entry level standards.
Capacity Building Objective Two is to develop and pilot professional development activities for Professional Education faculty. With support from the PT3 Capacity Building initiative, USM has conducted professional development activities for University faculty, focusing first on faculty who teach professional education core courses as well as on those who teach in three program areas: Elementary Education, Secondary English Education and Secondary Science and Mathematics Education. An assessment of training needs for these faculty who are PT3 project participants (7 in the fall semester of 1999, 8 in the spring semester of year 2000, and 8 in the summer semester of year 2000) indicated an interest in training related to three broad areas: web page development, distance learning technologies, and authoring tools, such as Hyperstudio and PowerPoint.
These participating faculty commit to pursue individual professional development plans. Project faculty work with them to provide direct support through training sessions organized for PT3 cohort participants and also direct them to existing training opportunities at USM. Faculty involvement in the project has included visits to schools in partner districts for observation of existing technology infusion activities and to join in on-site training sessions that are provided by cooperating school technology coordinators. Additionally, PT3 project faculty have been partnering with public school teachers for at least one semester. These two-member teams (a USM faculty member and a public school teacher) identify project goals and work together in the teachers' classrooms and schools t develop and engage in technology-supported learning activities. Reports form university faculty and from school partners indicate that these collaborative experiences have been the most beneficial aspect of the project activities for them and that this partnering has been highly effective for the teams' professional development as they learn ways to infuse technology in their teaching.
As Professional Education Faculty have collaborated with classroom teachers from partner school districts to develop and test course materials and lessons infused with the available technology, their presence in classroom and school settings has also provided support for the regular teachers to implement plans for employing some of the technologies in which they had already received school district and state training. This training has afforded occasional release time for teachers to explore an integrate technology to address curriculum objectives without undermining the quality of instruction for k-12 students. USM faculty have also benefited by participating in field experiences in which they gain opportunities to test their new knowledge and experiences that they can draw on as they shape their course revisions.
Capacity Building Objective Three involves developing and piloting a systematic model of curricular reform for technology infusion in Teacher Education programs at USM. Using NCATE 2000 standards and standards from the relevant learned societies (ACEI, IRA, NCTE and NSTA), the current curriculum for each pilot program and for the targeted core courses are being reviewed for evidence (frequency and appropriateness) of technology infusion. Program curriculum committees are charged with determining the competencies and applications necessary for successful teaching and learning in their disciplines. A logical sequence of multiple learning experiences with technology will be designed and keyed to appropriate courses (for technology modeling behaviors by instructors and for student assignments that require the use of digital resources) to insure consistency within an individual program and across all professional education programs.
Also, documentation requirements and guidelines are being developed for all Teacher Education programs. All of the Teacher Education programs will be expected to document and to demonstrate effectiveness in technology infusion to support teaching and learning during regularly scheduled program reviews by the PEC's program review committee. A model of curricular reform relating to technology objectives will be available for programs to guide them in the extension of reform to all professional education courses and programs during the implementation phase of this work.

Capacity Building Objective Four involves proposing necessary enhancements to the current technology infrastructure at USM. A number of activities are now well underway to address this challenge. An assessment of dedicated Teacher Education facilities is being conducted. Through an extensive review of the literature, surveys of available current and emerging technologies at other institutions, and input from the Professional Education Faculty, USM is attempting to identify and establish facility requirements to promote technology infusion. After recommended facility requirements are determined, work will move forward to document limitations of our current infrastructure and to propose needed enhancements of facilities to assure the existence of Teacher Education student learning environments commensurate not only with PEF proposed facility requirements, but also consistent with exemplary school district and community college educational and instructional technology environments that are essential parts of the k-16 pre-service teacher preparation programs to which USM is strongly committed.

Program Evaluation:

An Evaluation plan for the PT3 Capacity Building Grant was designed to monitor progress toward meeting project goals and objectives and to establish benchmark data for use in ongoing "implementation" work. The purpose of current program evaluation work is primarily formative, relying on a variety of quantitative data gathered from surveys and observations. Evaluation activities have been conducted throughout the Capacity Building year and a portfolio containing the collected data and ongoing analysis of the effectiveness of the project activities is being developed. The portfolio includes baseline data collected at the beginning of each major activity, observable data demonstrating that the project is underway, evidence of participants' judgments about the project, and a variety of outcome indicators. Earlier in this report, summaries illustrating the extent and impact of program activities to date have been shared.

The entire range of professional development activities is being assessed and appraised with formative evaluation strategies in order to refine them for use with the remaining Professional Education Faculty during the implementation work that will follow this Capacity Building year. A Technology Demonstration Conference was held at the end of the Fall Semester (and will be held at the end of each semester of training) during which PEF and their partner teachers shared products and lessons that they developed during their time together. Also, technology seminars will be conducted for all PEF at the beginning of the next school year in which PEF who participated in the PT3 project will share conference-quality papers on best practices and lessons learned about teaching, learning and technology.

During this capacity building year, syllabi for professional education courses have been reviewed to gather baseline data on technology infusion. The review of 154 syllabi has indicated that word processing (44.2%) was the application most frequently required of students, followed by the use of Web browsers (29.9%), e-mail (17.5%), and databases (16.9%). Fifty-eight of the syllabi (37.7%) provided no evidence of required use of any technology tools by students.

Evaluation of the syllabi for evidence of technology use being modeled by instructors yielded similar data: word processing is evident in all but one of the syllabi (99.4%), e-mail us in 46.1%, Web browser use in 28.6%, and database use in 20.1%. An earlier needs assessment also indicated that word processing, e-mail, and Web browsers were the technologies most frequently used by faculty, with scanners, digitizers, CD-ROM production, Web page development software, presentation software, and Web-based courseware as the technologies used least by faculty.

Another aspect of capacity-building efforts that can support future implementation efforts is the initial development of two databases. With the help of partner school district contacts and of educational consortia directors, mentor teachers in the schools have been identified who are already using technology to support their students' learning in exemplary ways. Information has also been gathered about technology access available in the classrooms in which USM student teachers are consistently placed. Reports on 53 of the classrooms housing student teachers during the first placement for spring semester indicate that 51 (96%) have at least one computer. The majority (32/60%) have 2-4. Thirty-four classrooms (64%) are connected to the internet and 23 responses indicated that all computers in school classrooms have internet access. Gathering of this data will continue throughout the Spring semester 2000

in an effort to develop a clearer understanding about the technological realities of classrooms to which our student teachers and graduates go.

Conclusion

The program review and reform process, as well as the PT3 Capacity Building initiative at USM, has been built on a strong partnership base with support from and active involvement of a broad group of stakeholders in the preparation of future teachers in Mississippi. Activities that a PT3 Capacity Building grant has made possible are strengthening these relationships and accelerating support for significant processes of reform for this professional education program that produces 32% of the state of Mississippi' teachers.

Ultimately, the goal of this initiative is not simply to promote the transparent infusion of technology into the pre-service teachers' education or even into their instruction in their future classrooms. It is to insure that these future teachers are confident that they will be able to devise ways to use all the tools available to them at the university and in the field, including the powerful learning tools of technology, to improve student learning, to help their students to reach high standards, and to provide *all* of Mississippi's students with equitable access to the knowledge and skills they will need for responsible citizenship and productive employment in the 21st century.

REFERENCES

Hirumi, Atsuit and Isidro Grau IV A Review of Computer-Related State Standards, Textbooks, and Journal Articles: Implications for Preservice Teacher Education and Professional Development, Journal of Computing in Teacher Education, Volume 12 Number 4, 1996

Northrup, Pamela Taylor and Little, Wesley Establishing Instructional Technology Benchmarks for Teacher Preparation Programs, Journal of Teacher Education, Volume 47 Number 3, May-June 1996.

National Standards for Technology in Teacher Preparation, ISTE Accreditation and Standards Committee, http://www.iste.org/specproj/standards/intro.htm

Technology and the New Professional Teacher: 21st Century Classrooms, National Council for Accreditation of Teacher Education, http:/www.ncate.org

Technology Standards for Teachers, Southeast Regional Education Board: Atlanta, GA, http://www.sreb.org